THE JOURNAL OF GEOGRAPHY

VOL. VI SEPTEMBER, 1907 . No. 9

HETTNER'S CONCEPTION OF GEOGRAPHY

BY W. M. DAVIS
Harvard University, Cambridge, Mass.

Presented in abstract at the New York meeting of the Association of American Geographers, January 1, 1907.

ARTICLES that are concerned with abstract considerations regarding the content and methods of our science, rather than with practical exposition of the results of investigation on specific lines, seem to have relatively little attraction for the members of the Association of American Geographers, if one may judge by the small amount of discussion that they provoke. Nevertheless there is still so great a diversity of opinion as to the nature of geography, and so little progress towards agreement as to the essential characteristics of the subject which we in this Association are striving to promote, that it appears to me again desirable to ask the attention of our members to the nature of geography as a whole, in order that each one of us, laboring in some particular line, may feel that his work is reasonably connected with that of his fellows.

For this reason I wish to call attention to the views of Dr. Alfred Hettner, professor of geography in the University of Heidelberg and editor of the *Geographische Zeitschrift,* who published a year ago a valuable article on The Nature and Methods of Geography—*"Das Wesen und die Methode der Geographie"* (Geogr. Zeitschr., XI, 1905; 545-564, 615-629, 671-686). While first reading Hettner's essay I was struck with the contrasts that it presented to two essays of my own; one prepared several years ago and entitled "A Scheme of Geography" (Geogr. Jour., [London] XXII, 1903, 413-423), and the other delivered as a presidential address at our meeting last winter, with the title, "An Inductive Study of the Content of Geography." (Bull. Amer. Geogr. Soc., vol. 38, 1906, pp. 67-84); —but on later readings I came to perceive that the contrasts resulted rather from a different distribution of emphasis than from essential differences of object. Certain parts of the subject to which I had given little attention

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are so well supplemented and enforced by Hettner's article that I propose to present parts of it here in abstract as my second contribution to a discussion that may well occupy us for some time to come.

Hettner's leading idea is that geography is not the science of distribution, as Herbertson and some others would have it, but that it is concerned with the material filling of terrestrial spaces—*die dingliche Erfüllung der Erdräume.* He would therefore leave the distribution of orders, families, genera and species of plants or animals to systematic biologists, who take up each order or genus or species separately and trace it wherever it goes, giving relatively little attention to its association with other things, and feeling no responsibility for picturing the whole landscape of which the organic form constitutes a part. On the other hand, Hettner believes that the geographer must take up all sorts of things, organic and inorganic, together, just as he finds them in the space or region or district that he is describing; and that only in this way can an effective picture of terrestrial spaces, regions, or districts be given.

This seems to me an admirable distinction to make between the responsibilities of the biologist and the geographer; but I do not feel satisfied that the whole duty of the geographer is here indicated. What Hettner regards as geography, I would call only regional geography. It has been by another aspect of the subject, namely systematic geography, that I have always been especially attracted; and to systematic geography Hettner gives relatively little attention. It is true that he recognizes the advance which has been made in recent years in the way of explanatory treatment of land forms, and in the way of the development of a systematic terminology by which the different kinds of forms may be concisely named. He recognizes also that systematic geography is related to regional geography as the means are related to the end. Nevertheless, in the brief consideration which he gives to the use of systematic terminology in regional description, the full value of the means to the end does not appear to me to be perceived. The valley of the Neckar is taken as an example, in order to illustrate the incompetence of systematic description in picturing the actual valley; and after mentioning a few systematic features and suggesting the possibility that there may be others also, he turns to individual description, because, as he says, the Neckar valley has so many individual features that are unlike those of other valleys. It is certainly not to be questioned that regional geography must include many individual descriptions, in which local detail is added to generic statements; but the proportionate value of systematic and individual description seems to me understated in the example that Hettner

cites, and the example as he presents it should therefore not be taken as properly illustrating the incompetence of systematic methods. No mention is made of certain features that are systematically repeated in other incised meandering valleys and which presumably occur in that of the Neckar also; for example, the gentler slip-off slopes and the steeper under-cut slopes of the spurs which descend from the uplands into the meandering valley, the stage of advance in the removal of the spurs by the river, and in the development of the flood-plain scrolls which fit so appropriately around the end and along the down-valley side of the spurs. Yet it is only after these and other similarly recurring details are included that one can gain a proper measure of the value of systematic geography in its relation to regional geography.

From my point of view, the value of systematic terminology as a means of describing actual features already appears very high, although I am sure that we have not yet by any means learned its full value. In support of the opinion that there is a great gain in lucidity when a systematic terminology is used, let me cite the admirable account of the "Physiography of the Nicaragua canal route" by C. W. Hayes (Nat. Geogr. Mag., X, 1899, 233-246): and in proof of the statement that the full value of systematic geography is not yet reached, let me recall the number of items that have been found susceptible of systematic treatment in recent years. To mention only a few of these, consider for a moment the physiographic elements of an incised meandering valley, already noted above: they are manifest enough when once recognized, yet they commonly remain unmentioned, as if the observer had not seen them. The terms by which these elements may be named and brought to mind are certainly of great service in regional description, for the terms indicate the occurrence of generic forms, whose individual or local peculiarities may be concisely indicated by appropriate adjectives. Incised meandering valleys are of very frequent occurrence in many parts of the world; many excellent examples are to be found in Germany, but one may read many German essays treating the districts in which the valleys occur without gaining a clear picture of the valleys; and I believe that the chief reason for this is that the authors of the essays have not made sufficient use of systematic methods.

When it comes to the treatment of other things than land forms and climatic elements, such, for example, as the organic occupants of terrestrial spaces, a systematic terminology furnishes the only means of naming them; but I am not persuaded that the systematic terminology of plants and animals should be, for the geographer, the same in all cases as for the biolo-

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gist. The matter is still in a tentative state; an entirely satisfactory geographical, and not biological, treatment of these things is not yet developed. It may well be that the geographer will find that he need go into less detail than the biologist, and that new terms, such as are coming into vogue through the labors of various ecologists, may in time supply the geographical demands better than the names of species and genera which the systematic biologists must employ.

Hettner does not, however, find it desirable to recognize two chief divisions of geography, one inorganic and the other organic; he objects to the emphasis that some writers have given to the dual quality of geography. True, he recognizes the great importance of the control exerted by physiographic environment over organic conditions; but he recognizes also the cause-and-effect relation that exists within the inorganic and the organic parts of geography, taken separately, and he finds in the long enchainment of causes and effects, which frequently crosses from one part to the other, a reason for considering the subject as a whole in its essential unity, instead of in its inorganic and organic duality. Surely no one can wish in this day to belittle the importance of the long series of enchained causes and effects, which may begin, for example, with sunshine, and run through terrestrial temperatures, gravitational action, atmospheric circulation, climatic belts, vegetable products in one zone, demand for food in another, sailing routes on the oceans, harborage and transportation lines on the land, until they reach most immediately into the manner of human life in this or that district. Nevertheless, the contrasts between the whole assemblage of inorganic elements on the one hand and of organic elements on the other hand is so great that in my experience it is a practical advantage to treat the inorganic controls separately from the organic needs, and to hold the essential feature of geography to be the relation into which these inorganic and organic—or physiographic and ontographic—elements constantly enter. In illustration of the profit that comes from this method of treatment, I may point to an article by Ellsworth Huntington on "The Mountains of Turkestan" (Geogr. Jour. [London], XXV, 1905, 23-40, 139-158), where it finds admirable exemplification.

It is doubtless true that the systematic treatment of the organic aspects of geography has as yet been less advanced than the systematic treatment of its inorganic aspects; and that for this reason, the organic aspects of the subject must to-day be treated in large measure individually instead of generically: but here as in physiography there are encouraging signs of the recurrence of similar relations or responses, wherever similar physiographic

controls operate on similar ontographic needs. If further study shows this to be widely true, it may in time come to be habitual to treat a congeries of similar causes and effects by a single name—just as we now call a whole group of streams and rivers by the name, river system. There is no phase of geography in which original study, especially field study, can to-day be better applied than in this.

It is quite possible that Hettner might agree with much that is here said; for, as already pointed out, he explicitly recognizes a certain value in systematic methods; but the small emphasis that he places upon the usefulness of systematic methods in regional descriptions must give his readers a much lower estimate of their practical importance than this phase of our science in my opinion deserves.

SCHOOL EXCURSIONS IN GEOGRAPHY

In conclusion I should like to say a few words about open air instruction and geography excursions. As high as one may assess the value of such excursions, great difficulties stand in the way, which the writers enter too little upon. They consist not only in the often very considerable distances from the school of such localities as offer geographical material worth visiting, but above all in the size of the classes. The result is that the teacher can really only work with a part of the class, so that for many the excursion is time lost. Treutlein, in a recent program of the Royal Reform Gymnasium at Karlsruhe, has made a very practical suggestion in order to remedy this situation. He would like to have the geography and nature-study department teachers undertake excursions together, so that by relieving each other all of the class would receive instruction.

—*Geographische Zeitschrift.*

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FIELD WORK IN THE CLASSROOM

BY PHILIP EMERSON
Cobbet School, Lynn, Mass.

NEARLY three years ago the JOURNAL OF GEOGRAPHY sent out a circular request reading as follows: "In an American art publication has recently appeared a series of articles on 'The Use of Pictures in Geography Teaching.' The JOURNAL OF GEOGRAPHY is interested in finding out the facts concerning this new feature of geography study, and asks as a favor that you, as a practical and experienced teacher of geography, give the matter a little thought, and send us your opinion of it. Would a collection of pictures in each department of geography arranged in groups and series be of practical use? Is it good pedagogy to add in this way to the school room paraphernalia? Do text-books contain all the illustrations necessary for successful work?" The subject is one of general interest and so important as to deserve thorough discussion. This presentation of experience and opinion is made in the hope of drawing out the thought and testimony of other workers, as well as for the purpose of acquainting teachers with the latest means for world study.

The great value of pictures in presenting foreign scenes and unfamiliar subjects was recognized when the first geographical school texts were issued a century or so ago. Since then the pictures used have greatly improved but the plan of treatment is much the same. The picture illustrates or perhaps extends somewhat the statements of the text. Its intent is to make clear what is stated inadequately with written words. The title of the picture or the accompanying brief comment usually accords with this plan. In practice, then, the picture is a supplement and not a prime source of truth.

There is evident in some texts a feeling that pictures should be more than illustrations of truths stated by the book. A few geographies have gathered pictures into groups or series that would tell their own stories were pupils trained to read them. Others have carefully chosen typical scenes and have accompanied some of them by a few, very few, questions, rather than by statements alone. Prefaces of other books emphasize with what care photographs have been selected and reproduced, that teachers may guide their pupils in learning as much from them as from the text itself. Little more aid than the opening suggestion, however, is offered the teacher to this end, and one who really trains her pupils to study the rich content of pictures thoughtfully and to definite purpose is rarely found.

To do this demands a broad and thorough knowledge of geography and intense, continued study of every pictured scene by the teacher herself before she directs pupils in its study. For these reasons good picture study is as rare as good field study. Both are valuable and should be made possible for the average teacher and any class.

In recent years some teachers specially interested in geography have put much work into the selection and arrangement of pictures that should be studied by a class not merely as supplementary to the text but rather as sources of knowledge that should precede the text. Children should be taught to study pictures and to compare and relate pictures so as to arrive at truths of value. Frequently the text should serve merely to revise and set forth clearly the conclusions the pupils have arrived at by field work or by the study of objects and pictures in the geographical laboratory, the schoolroom. In the writer's own experience he has failed uniformly to attain this ideal in the ordinary course of daily work.

With the expenditure of much time and some money thousands of half-tone views may be accumulated, classified and mounted. When pasted on squares of cardboard they prove durable enough and are fairly convenient in use, but seldom lead to tangible results. An able normal school teacher, one of the first leaders in the improvement of geography teaching, claimed for such a plan only that the pupils gained a composite mental picture of a place or subject that was clearer than the text alone could give. It was not expected that the pupils would in recitation tell materially more than they had read. This is extensive work—looking at pictures. Pictures as thus used supplement the text, and that only.

Some teachers have carefully grouped pictures, for instance, mounting many on one sheet of cloth like a map. Or they have purchased valuable photographs that presented important types and have written several questions to direct the pupils in studying each. The cost in time or money has always limited the elaboration of either plan. Few teachers also have developed the special skill needed to guide pupils to the perception and formulation of really important general truths by means of the thoughtful observation of pictures. The efforts thus vainly expended, and the inadequate treatment of pictures in text-books, clearly call for the provision of carefully chosen sets of pictures with accompanying directions and questions such as are contemplated in the JOURNAL'S inquiry. Only thus may world geography be studied, as field work enables students to learn home geography.

There has been another hindrance to effective field study of distant

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scenes. Despite improvements in pictures they remain flat diagrams, either somewhat inaccurate or lacking clearness of detail. Half-tones reproduce the facts truthfully, but with blurred lines. Engravings possess sharp lines, but they present the artisan's interpretation of nature rather than nature's truth alone. In either case the student never loses sight of the fact that he is looking at a picture. He does not receive the inspiration and deep impression that comes with the sense of looking upon the actual place or object with all its wealth of detail.

This lack of reality and detailed truthfulness on the part of pictures is supplied by the stereoscope and stereoscopic view. The stereoscope supplies double vision, and the physical action of the senses being normal the sensations of reality are secured. Three dimensions are given to a scene, as in nature, instead of the two dimensions of a detailed diagram, or picture. Objects appear of life size, with corresponding richness of detail. Subjectively and objectively such attainment of reality is secured that when looking from a height by means of the stereoscope sensations of dizziness and fear are involuntarily experienced. A child looking at a scene through the stereoscope points not at places on the stereoscopic view, or stereograph, but at places far behind it, where, as he looks into the depths of the landscape he feels that they actually are.

The stereoscope supplies the deficiencies of mere pictures, yet preserves the advantages they afford. The stereoscope in the school room combines many valuable features of field and laboratory work, yet avoids disadvantages. When every one of a group of pupils is provided with a stereoscope and duplicate stereograph,—and this is not so ideal a plan as it may seem at first thought, for the requisite expense is very reasonable,—they are practically assembled at one position in the field, and may respond to the directions and questions of their teacher as though they were gathered on some hill of the school district to study the geography there spread before them. If actually in the field a multitude of impressions upon the ear and all senses would tend to distract attention. When children are really outdoors, where they are accustomed to full freedom rather than quiet, orderly application to study, much of the teacher's energy is spent in maintaining discipline. Such is the writer's experience after long continued field work with pupils of all ages. Quite the opposite is true for field study with the stereoscope. The familiar quiet and concentration of purpose of the schoolroom are continued, of course, and the marvellously vivid impression of the outer world secured through the lenses of the stereoscope, while its hood shuts away all other impressions save the guiding directions of the

teacher's voice, makes the conditions ideal for orderly, effective attention to the work in hand. The pupil sees the wide world in company with his classmates, yet works with the same intense application that he yields when absorbed in some fascinating book or earnest study.

The stereoscope incidentally supplies the means of correcting one of the failings of the graded school. In ungraded district schools teachers are compelled to leave the pupils to study by themselves, and such study is independent even if somewhat ineffective. In graded schools enthusiastic instructors in geography teach or lecture or conduct recitations, until scant time is left for wisely planned study by the pupils. There should be such independent study of features of the lands and life about the school, and study of specimens, pictures, maps and text in the schoolroom by the individual pupils separately. The stereoscope gives ideal conditions for such work. Shut away from companions by the hood of the instrument, and set down amid the marvels of distant scenes, interest is seized and held. Instead of soon losing interest in a scene, its vivid reality and wealth of detail make pupils loth to leave it either to return to the schoolroom or to visit another place too quickly. After a period of stereoscopic study a class are eager for the opportunity to state their observations and conclusions, and a recitation period is all too brief to satisfy them.

The same difficulty holds here as with ordinary pictures, however; the labor of preparing detailed directions and questions to guide pupils in the independent study of typical scenes, or of a topic as presented from a series of standpoints for camera and student, prevents the accustomed use of the stereoscope as it does the habitual use of actual field work. Impressed by the great importance to schools of a workable plan for the use of stereographs, the writer, in association with Mr. Wm. C. Moore, the instructor in geography in the State Normal School at Salem, Massachusetts, has given three years to the selection of the best stereographs from the many thousands on sale by Underwood & Underwood of New York City, and to the elaboration in connection with schoolroom practice of such detailed directions as shall furnish a sufficient Stereoscopic Field Guide for practical work by pupils during periods for independent study, and an efficient aid for teachers in the form of an accompanying Manual. This Guide and Manual on Geography Through the Stereoscope have just been published by Underwood & Underwood, so that the stereoscope is now made really available for all teachers. Where it has previously served as a bit of dessert, placed on a schoolroom table with supplementary readers, it now takes rank as a most substantial and indispensable part of an ideal ration for the study of geography in a well equipped school.

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The plans adopted provide for systematic study by entire classes within short periods of time, yet avoid the expense of providing as many duplicates of every stereograph as there are pupils in a class. A class of ordinary size to-day numbers forty-eight pupils or less. Twelve stereoscopes and as many stereographs are enough for such a class to study a topic. The stereographs may be twelve duplicates of one scene or six duplicates of each of two scenes; or three, four, or six different standpoints may be taken in succession by giving corresponding variety to the twelve stereographs forming a set. One of the sections of the class will work with their teacher on some other study than geography, while the study section will use the stereoscopes. At any one time twelve of these twenty-four pupils will be engaged in observation, using the stereoscopes, while their twelve mates are either recording their observations or noting just what they are to observe next. It will readily be perceived that with such a plan properly elaborated by a detailed Guide, most profitable results may be obtained at a very moderate outlay for a school outfit. Details of the methods described will be given concrete presentation by means of typical studies, which will appear in an early issue of the JOURNAL OF GEOGRAPHY.

NEWS ITEMS

Miss Zonia Baber of the School of Education, University of Chicago, is publishing in the *Elementary School Teacher* a very suggestive and helpful series of articles devoted to the teaching of the several continents. These articles are very full in outline, and are accompanied by a lengthy series of bibliographical references. Valuable to all grade teachers.

The recently formed California Physical Geography Club has begun the publication of a Bulletin. The first number includes the following articles: Suggestions for the Study of Soils in Schools; California's Inland Sea; The History of the Blue Lakes.

Two recent appointments to the faculty of the University of Minnesota mean much for the development of geography in that institution. Dr. Edward Van Dyke Robinson, Principal of the St. Paul High School, has been made Professor of Economics, and will give courses in Commercial Geography, and Professor Edward M. Lehnerts, for many years head of the Department of Geography at the Winona Normal School, and a valued editorial colleague on the JOURNAL OF GEOGRAPHY, has been made Assistant Professor of Geology and Geography.

Dr. Ellsworth Huntington, noted for his good work in the desert regions of Central Asia, has been made Instructor in Geography in Yale University.

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EDITORIAL

A TEACHER of school geography, to be successful, must keep up with changes both in the content of the subject and in methods of teaching. Although to most minds geography is an unchanging subject, as a matter of fact new discoveries, new information, new ideas as to what school geography should be, make the subject anything but fixed, and a teacher who would do the best work needs to keep in close touch with the changes that students of geography teaching find necessary for progress and good work.

Changes in detail of classroom work are of lesser importance than changes in plan of treatment and new ideas as to the emphasis that should be given to different phases of the vast subject of geography, which can only be epitomized in school work. These changes are a sign of advance in every way. Geography investigators and teachers of teachers realize, as never before, what practical, valuable, school geography should be. School officers are more keenly alive to the value of geography as a strong subject in the school curriculum, and teachers are better prepared for new work than ever before.

The emphasis on school geography is now given less to the physical side, than to the life side of geography, including economic geography. Physical geography is now taught as a means to an end, and not as an end in itself. Commercial geography can not be taught fully in elementary schools, but the essential elements need to be brought out in a causal way, that pupils may be prepared to understand current events in the broadest way, and be ready to apply that knowledge in every day life.

These changes in the scope and character of school geography involve advances along many lines, for no teacher can do her work well unless supplied with a better teaching equipment of maps and illustrations than ever before. New texts are appearing rapidly, and new volumes for reference and supplementary reading are prophets of what the texts yet to appear will incorporate as a component part of the text. The problem of school geography is by no means solved. Geography for rural schools has hardly been approached at all, the best use to be made of illustrative materials is by no means clearly understood, teachers are still too much slaves of the texts and courses of study. The problems of the future are as vital as those of the last decade. To the solving of these problems the JOURNAL will contribute the best that can be found, from month to month, with the hope that progress can be made rapidly along all lines of school geography work.

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REVIEWS

WISCONSIN, ITS GEOLOGY AND PHYSICAL GEOGRAPHY, by E. C. Case, PhD., State Normal School, Milwaukee, Wis.

ONE by one the States of the Union are receiving treatment at the hands of physiographers interested in the educational problems of the State. This latest State treatment, by Dr. Case, differs somewhat from its predecessors in the stress which is placed upon the more purely geological aspect of the subject. Its chapters deal with the General Description of the Surface of the State, The Geological History and Structure, The Preglacial Degradation of the Surface, Artesian Water, Glaciation, and Shore Line; then follows a discussion of the State by separate sections, after which come chapters on Climate and Soils.

From this book one gains an excellent general idea of the geological development of the present-day scenery of an interesting section of the country. It will serve as an admirable text for use in the State of Wisconsin and also as a book of reference outside of the State. It is illustrated by a number of diagrams and maps as well as by a few half-tones.

There is nothing to guide one in preparing a book of this nature. Each state treatment has differed in general character according to the individuality of the author, and this latest contribution is a type by itself. Individual opinion will vary as to the desirability of so purely geological a treatment as that which Mr. Case has presented; but no one can question his having brought forward a logical discussion of the basal principles underlying the origin of the main topographic features of the State of Wisconsin. From the standpoint of the needs of the geographer, one serious criticism seems warranted. There is no adequate discussion of the human relationships to the physiography. It is greatly to be hoped that in a new edition Dr. Case may find it possible to add to his admirable geologic and physiographic treatment a discussion of the bearing that this all has upon the industries and development of the State of Wisconsin. With such an addition the book ought to secure even wider use among the schools of the State.—R. S. TARR.

THE PEDAGOGY OF GEOGRAPHY, by David Gibbs. The Pedagogical Seminary. Vol. XIV, 39-100. March, 1907.

Under this title, Dr. Gibbs has published a thesis which teachers of geography will find interesting and instructive. The article begins with a review of the text-books in geography from the time of Eratosthenes to

the present. A rather disparaging view of the progress of the presentation of the subject is maintained. This is followed by a review of the methods of teaching geography during the same period. It is interesting to note that as far as the records go back, to the time of Strabo, observation was considered fundamental. Observation, representation by maps and the adaptation of the work to the child are classed as ancient accomplishments to which the present has added little. Among recent improvements in teaching, Mr. Gibbs cites the topical method and the method by types.

A third part of the thesis discusses the status of geography in Europe. This is followed by sections on geography in high schools, normal schools, technical schools and colleges.

Section VIII on the geography in the elementary schools comprises over half of the thesis, and its suggestiveness is in a larger ratio. This subject is approached by a study of the courses of study in a number of cities and by questionnaires relating to the conditions of teaching, defects, plans for improvement, children's interests and kindred topics. The questionnaire method at its best has certain inherent difficulties and tabulated answers therefrom often lead a reader, prejudiced to a certain view point, to a confirmation of his opinion. When questions are asked with intelligence and answered as intelligently the compilation of the results should certainly be worth studying by open-minded persons. Mr. Gibbs carries the questionnaire method into the grade schools, grades IV to VIII, in order to seek the children's geographical interests and to some degree to yield a basis for a course of study. The reviewer questions the value of the answers derived from such sources. Children are full of created interests which are in part the result of some accident, as location, and more, the concomitants of a pathway along which they are led, often by a skillful teacher. As far as the children's answers are given in Mr. Gibbs' thesis, they show the power of suggestion through the means of the present course of study beyond which their vision is limited. Mr. Gibbs says that "the child in the lowest grades wants to know how the experiences of the Eskimo child, the Japanese child.....differs from his own." He infers from this and similar things that the children at this stage are most interested in peoples. It may be so, but the conclusion is not the logical outcome of the answers to his questions. All that can be inferred is that the children have become interested in the Eskimo child and the Japanese child, probably by a teacher or by such stories as The Seven Little Sisters, etc. We believe that we have taken a great step forward by adopting a pedagogy that considers the child; a pedagogy that consults a child must be circumscribed. In his

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summary, Mr. Gibbs unwittingly negatives his inferences in this regard and states that the interests of the children are created by the teacher's skill.

The thesis in other portions deals with the materials of instruction, maps, the value of geography and allied topics. The different sections are well summarized and one may turn easily to any portion of the paper. A bibliography is appended. The thesis covers a great deal of ground, but the statements are concise and the conclusions are quickly reached. It is doubtful whether Mr. Gibbs' desire to aid in the improvement of geography teaching by means of this paper will be realized to any great extent unless it is printed in a more accessible place.—R. M. B.

RECENT PUBLICATIONS

FROM TRAIL TO RAILWAY THROUGH THE APPALACHIANS. By Albert Perry Brigham; pp. 188; Boston, Ginn & Co., 1907.

A reading book for the upper grammar grades, in which the geography and history of the Eastern United States are interestingly woven together. Special attention is given to the great highways through the Appalachians, and their development. Well illustrated, and accompanied by a good index.

THE SENIOR GEOGRAPHY. By A. J. and F. D. Herbertson; Vol. III of the Oxford Geographies; pp. 363; Oxford, The Clarendon Press, 1907.

A brief, accurate, causal consideration of the countries of the world, accompanied by many physical maps and diagrams in black and white. Extremely valuable as a reference book for teachers who desire accurate information to supplement their class text-books.

A JUNIOR COURSE OF COMPARATIVE GEOGRAPHY. By P. H. L'Estrange; pp. 239; George Philip & Son, London, 1907.

A class book by terms adapted to accompany Philips' Progressive Atlas of Comparative Geography. Each region is taken up in the causal order, and is to be studied largely through a series of well selected questions and exercises, based on the maps in the Atlas mentioned. Illustrated by pictures, maps, and diagrams and extremely suggestive to teachers. It deserves to be in every normal school library.

TEACHERS' GEOGRAPHY. A Syllabus and Note Book. By Mark S. W. Jefferson, Michigan State Normal College; published by the author, 1906.

A series of 31 practical and tested exercises, devoted to map making, and the study of climate. The book includes cross section paper, ruled note pages, blank pages for drawing, and a series of outline maps. It includes many new and suggestive exercises of value to any teacher of physical geography.

CONTRIBUTIONS TO THE GEOGRAPHY OF MICHIGAN. By Mark S. W. Jefferson, Michigan State Normal College.

A brief summary of the salient features of the geography of Michigan, written in an interesting way, and well illustrated. It should be in the hands of all teachers in the State.

SCHULATLAS Für Anfangsunterricht Und Mittelstufen. By Heinrich Fischer; Leipzig, Velhagen & Klasing, 1907.

An attractive political and physical atlas of the world, with many inset maps, showing economic and social features.

PHILIPS' HANDY ATLAS OF THE WORLD. By E. G. Ravenstein; George Philip & Son, London, 1907.

A small volume containing 72 plates, devoted to the political features of the world, accompanied by an inclusive index. A handy volume for the study or library table.

GEOGRAPHEN-KALENDER. By Dr. Hermann Haack. Gotha, Justus Perthes, 1907.

The fifth annual volume in the series, giving, beside the usual calendar, a statement of the geographical events of the year, a summary of the geographical literature, deaths among geographers for 1906, address book of the geographers of the world, and thirty-six maps descriptive of the text. A valuable reference book for all libraries.

FOODS, OR HOW THE WORLD IS FED. By Frank G. Carpenter; pp. 362; American Book Company, New York, 1907.

A reading book on the more important foods of the world, by the eminent author whose geographical readers are so well known. Well illustrated and attractive. A supplementary volume for the upper grammar grades where the commercial side of geography is emphasized.

DICTIONNAIRE DE GEOGRAPHIE. By Albert Demangeon; pp. 860; Armand Colin, Paris, 1907.

It contains names of the important places, brief biographies of the eminent explorers, and geographers, definitions of the usual terms in physical and life geography, including commercial geography. An abridged gazetteer for reference.

MANUAL OF THE GEOLOGY OF CONNECTICUT. By William North Rice and Herbert Ernest Gregory, being Bulletin 6 of the State Geological and History Survey. Published by the State. Connecticut.

A well written, well illustrated and interesting account of the essential geologic and geographic features of Connecticut, of special value to teachers. Should be accompanied by Bulletin No. 7, by Herbert Ernest Gregory and Henry Hollister Robinson, entitled Preliminary Geological Map of Connecticut.

COMMERCIAL RAW MATERIALS. Their Origin, Preparation, and Uses. By Charles R. Toothaker; pp. 108; Ginn & Co., Boston, 1907.

A very brief summary of the principal commercial products of the world, accompanied by many colored maps. A handy reference volume for teachers who do not have access to a larger commercial atlas.

PHYSIOGRAPHY. By Rollin D. Salisbury; pp. 770; Henry Holt & Co., New York, 1907.

An authoritative and inclusive volume on physical geography. The most successful text which has thus far appeared, taking up the features of earth, air, and water in a detailed manner. Includes many topographic maps, accompanied by class exercises splendidly illustrated, well written and interesting. A necessary reference volume for all teachers of geography.

HAND BOOK OF AMERICAN INDIANS NORTH OF MEXICO. Part 1, being Bulletin 3 of the Bureau of American Ethnology.

An encyclopedia devoted to the Indians of America, going through the letter M. A reference volume of great value to teachers who would emphasize the social side of the geography of the United States.

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NOTES

MODERN GEOGRAPHY TEACHING.—Of late years a great change has arisen in connection with geography. A truer conception of its value and importance has arisen, and attempts have been made to widen the range of the subject and to devote greater time to its study. This alteration of opinion towards geography has tended to produce a vagueness which discourages teachers. They would like to know precisely what geography is and what a true scheme of geographical teaching should include. Its limits must be wide, but certain exclusions are necessary. An eminent educationalist has suggested that it should include the following:

1. An elementary knowledge of natural science to enable boys to understand such natural phenomena as air and water. These should be taught as physics and are essential to the understanding of currents.
2. A knowledge of the surface of the earth, plains, heights, etc.
3. The powers to represent this surface on paper; and ability to read maps.
4. The effect of physical configuration on climate.
5. Races and occupations should be known.
6. Interaction of physical features.
7. A knowledge of the position of the earth among the planets as bearing on 4 and 5.
8. The position, direction of rivers, and reasons for their position.
9. Distribution of animals and plants.

Now this seems a formidable table; and much of it is new. It could only be got if the curriculum was very carefully planned and the actual teaching of these divisions of the subjects done methodically and spread over several years. Geography is not now given much time in the curriculum and it is improbable that much time ever will be given to it. The pressure is too great, and there is an ever-increasing danger of encyclopædism, and of the teaching of a great number of subjects none of which are thoroughly known. But even if only two hours a week are given to the subject much may be done.

It will be convenient now to consider what qualities of mind the teaching of geography may be expected to cultivate, if that teaching be good. First of all observation and what may be called the "locality-sense" should be improved. The objects met with round the home will have a fuller meaning to the eye. The effects of rain, the action of springs, both intermittent and constant, the relative position of neighboring places, heights and levels will be noticed and become full of interest. Again, a clear and real conception of foreign geographical objects can be given, in which con-

nection mechanical aids, such as pictures and a well-stocked geographical museum, will be found useful. Further, the imagination and the emotions can be cultivated. The pupil can image what he has not seen, and make mental comparisons with what is familiar to him, whilst his emotional susceptibilities may be trained and strengthened by the history of graphical discoveries and exploring expeditions. He will learn to admire the qualities of a Columbus or Vasco da Gama, and his enthusiasm will be roused by the voyages and travels which led to imperial expansion. When he is considering the causes which led to the prosperity and growth of certain towns, or examining into the effect of physical configuration on climate the pupil's reasoning powers will be called forth. Once more, if map drawing is well taught, it is valuable in that it coördinates hand and eye when the pupil draws. Lastly, apart from these qualities of mind which geography may cultivate, it may be remarked that the advantages of teaching the subject, from a utilitarian point of view, are undeniable. Even a simple knowledge of the position of places and the comparative distribution of products may be of use.

We may now consider how far the teaching of geography may be correlated with that of other subjects. In all teaching it must be borne in mind that a new piece of knowledge is not an isolated fragment. It is the same boy, moreover, who receives different lessons and of himself he will try to combine alien elements. The principle of correlation applies both to material and method, and all suggestions from correlated subjects are to be welcomed which aid the class in gaining a better hold of the subject in hand. Nor is correlation unwise, for interest in a particular subject may be abnormally developed. This tendency may be checked by a careful use of the principle. It is true that a special interest is acquired in particular subjects in the higher divisions of a school, and it may be admitted that the principle is easier to apply in the early stages when a boy's knowledge is naturally somewhat vague. And it may be further admitted that correlating subjects together may easily be overdone, inasmuch as the interconnection of subjects is often too subtle for a boy to appreciate; and there is an ever-present danger lest the teacher should overload the minds of his class with irrelevant details. And it is just here that the followers of Herbart were at fault, as the following quotation from Ziller abundantly shows. "Humanistic instruction and scientific instruction are connected as instruction in things, and all subject must be brought into unity with humanistic instruction, and this latter is the central point of the whole system. For every grade of instruction and for each class a section of

thought complete in itself—a section of humanistic material—must be set up as the concentration center, round which lies all peripherally, and from which the connecting threads start, which, radiating on all sides continuously, unite and hold together the various parts of the child's circle of thought. In this way instruction ceases to be a loose aggregate of subjects which otherwise is absolutely unavoidable." To correlate to this extent is out of the question, as our remarks above show. But some correlation is advantageous, and geography is undoubtedly a subject which lends itself to it, especially in connection with literature and history. For example, suppose the Tudor period is being studied. The history of geographical discoveries may well come into the scheme of the geography lesson: and appropriate literature is ready to hand. Tennyson's "Revenge" and Macaulay's "Armada" may be read in connection with the geography of the Armada. Similarly instances could be multiplied where Indian history and geography go hand in hand. Still it remains true that they are two subjects, not one, and it is worthy of note that in the New Rules of the University of Madras for the Matriculation Examination, History and Geography have been constituted separate subjects. In fine, we may say that history, literature and such subjects as geology should be included in geographical teaching only as occasional illustrations.

—*From The Indian Journal of Education, January, 1907.*

General Principles of Geography Education.—Turning to the general principles underlying a sound geographical education, I should like to put before you the substance of a most interesting letter on the subject which I have recently received from Mr. H. J. Mackinder, Director of the London School of Economics, and whom you know to be one of the highest authorities in Britain on Geographical Education. I have only time to read extracts, so that you will not hold the writer too closely to passages given without their context. He says, "Geography must not be thought of as a mass of information merely, or indeed chiefly. Its distinguishing characteristic, giving it peculiar value as a discipline, is that it has its own special point of view and mode of thought and of memory. The geographer thinks in spaces and shapes. So far from names being material to the subject, even words are not essential to geographical thought. In the elementary stage the teaching of geography should not adhere pedantically to any method. The main point is that a few things should be vividly and rationally taught. Such precision as is involved in the use of latitudes and longitudes should be eschewed, unless in the highest standards.

No doubt nature-study should come first, but it must not be substituted for geography, for which it only prepares. In secondary education the teaching of geography, should, I think, be more methodical and precise, but what is chiefly important is that it should be progressive in method. Geography may well serve in this stage for the purpose of correlating subjects, both scientific and historical, but the more that such a function is assigned to it the more necessary does it become to have a clearly defined and strictly geographical argument running through the whole of the teaching. In other words, the geographical point of view must be dominant, and not the view points of this or that auxiliary science. In the university stage, geography should be studied both from a specialist and from a general standpoint; that is to say, that while it is a condition of progress in our knowledge that we forsake the whole field and concentrate on some part of it, yet it is only in the university stage that what I may describe as the philosophy of the subject can be fully appreciated. It is essential, however, that the specialist should already have firmly acquired the geographical method and the geographical point of view. Until secondary education in geography is more generally thorough, I fear that the university teacher of the subject will have to teach much which in a future generation will have been learned by his pupils before they come to him. To my mind, by far the most important function of the university teacher of geography in the present and immediate future must be to produce a considerable number of good secondary teachers of the subject, and to establish a tradition of geographical school teaching. The danger of the moment is that in view of the sudden demand for school teachers of geography which has recently sprung up, we shall be tempted to equip and employ persons of inferior general education and mental power. Geography requires in the teacher both a firm grasp of principle and a broad outlook. With these qualities, I believe that it can be made a discipline of the highest order, but no subject is so easily reduced by an inferior teacher to a low pedagogic value, worthy of all the contempt that has been poured upon it."

—From Scottish Geographical Magazine, January, 1907.

HOME GEOGRAPHY.—In all the important countries of Europe and in the majority of cities in this country, the subject of home geography receives much attention. The learning of geography has especially to do with things and definite images of things. Personal experience is the final basis of geography. Learning the more important geographical factors is one of the main purposes of teaching home geography. It gives a mass of apperceiving concepts necessary for future study.

A great mistake, however, is made in sacrificing the interests of the child. Children in the first grades are most interested in life and its doings, and not in physical features of the earth and the processes of their development. The physical factors of relief, the morphology of form, the making of plains, the processes of mountain building, etc., because they are the fundamental ideas of physical geography and admit of observation and illustration, have been pushed down from the university into this earliest stage of geographical study. It is the business of the upper grades, when the pupil has mental grasp, some power of reasoning, and a mass of descriptive facts, to consider geographical facts in their logical relations, and the physical factors which form their background. I can see no sufficient reason why physical and commercial geography should be crowded into these first grades under the title of "home geography," if these subjects are to be main objects of study in the upper grades. The so-called "home geography" as outlined in some text-books does not deserve the name. The topics to be considered vary with the localities, and can be treated only in special texts on the home geography of these districts. Such books are common in Germany, but have not yet come into use here.

Another important defect in practice everywhere is that the study of home geography practically ceases after the pupils begin the study of the text-book. This may account in part for the early emphasis on physical geography, but it disregards the natural interests of the child, and his mental development. If geography is a science at all, the first general observations must admit of and require more detailed observation, the searching out of more definite facts, and the working over of old materials by more comprehensive methods to arrive at wider conceptions, applications, and connections. The study of geography by observation must be continued throughout. Observational work must be graded and adapted to the capacities of the child. All geography is an extended home geography.

For the study of home geography, out-of-door study is necessary, yet most of our city courses prescribing home geography make no provision for out-of-door study. This is also true of the work done in the normal schools. Such a procedure certainly approaches a contradiction. It is objected that excursions take much time from other studies; classes are too large and discipline too difficult out-of-doors; excursions are unconventional; time is not provided for this work in school programmes; children are often too poorly clothed for country walks; excursions generally cost money; and teachers have had no experience in teaching out-of-doors. These are all more or less serious objections, yet they are mainly of organization and

preparation, and of a secondary nature. The value of studying things at first hand is sure to be more and more recognized. The teacher must learn to do this work, and institutions which train teachers must see that they know both the facts and the methods necessary.

—*From The Pedagogy of Geography.*

THE VALUE OF GEOGRAPHY.—Geography by the older methods cultivated the verbal memory. More recently reason has been made prominent, but the number of facts to be memorized has not greatly diminished. Geography, when taught as outlined in the foregoing discussion, should strongly cultivate observation, reproduction and representation, imagination, and inductive reasoning. It should broaden the sympathies, and give the student a larger idea of his relations to other peoples of the world. Strabo wrote "In addition to its vast importance to social life and the art of government, geography unfolds to us the celestial phenomena, acquaints us with the occupants of the land and ocean and the vegetation, fruits, and peculiarities of the various quarters of the earth, a knowledge of which marks him who cultivates it as a man earnest in the great problems of life and happiness."

The facts of geography are of value in the study of a number of sciences. Geography is indispensable in the study of history, and of many economic and social conditions. A knowledge of other countries, their people, customs, government, climate, products, topography, means of communication, etc., are essential for commerce. Economic progress, which is the basis of all progress, is largely dependent upon geographical factors. Diplomatic and international relations are very greatly influenced by the amount and kind of geographical knowledge possessed by the peoples of the countries concerned and by their officials.

Further, a knowledge of geography is of great cultural value. It broadens the sympathies, overcomes racial and national prejudices, and makes the student a citizen of the world. The modern development of means of communication and travel, the great increase in the needs and wealth of nations, the centering of great national questions about educational, commercial, and racial questions, make a general knowledge of the geography of all countries and peoples necessary. No one thing will do more for universal peace of the world and the progressive development of the races, than a sympathetic knowledge of their peoples, their habits, customs, conditions of life, their social and economic advantages. In the words of Herder, a student of mankind, geography "sharpens the sense of human-

ity in all its forms. It teaches us with enlightened eye to see and to prize our advantages without thereby despising or condemning any one nation of the earth." In no time in the history of civilization has a knowledge of the countries and peoples of the world been so necessary. Many of our greatest national questions to-day are retarded in their just and amicable settlement by the general ignorance of the masses of the geographical facts involved. Moreover, this general relation of geography to national development is sure to become more important in the future. Heretofore man has depended mainly upon the productiveness of a few alluvial plains and ore-producing sections, but in the future the whole world will be laid under tribute. This will require a more careful study of man's relation to suurface, climate, productiveness, and of the possibilities and special fields of development of the various races.

SUMMARY

1. The development of geography historically and of geographical text-books shows that there has been very little change for several centuries in the kind, amount, and arrangement of facts presented as materials for instruction. The recent emphasis upon man and upon causal relations has made some change in the arrangement of materials, but very little improvement in adaptation to the child.

2. The history of the methods of teaching geography as outlined by the great teachers in educational history shows that the necessity of adapting the materials and methods to the child was recognized early, even by Strabo, but has been very little heeded in actual practice. The practice has been mainly in accordance with the arrangement and methods of the text-books.

3. Present general practice in Europe shows a mixture of good and bad methods. The emphasis upon observation and self-activity has come to mean home geography, but this method is used mainly only in the lowest grades. In this country observation out-of-doors in geography is limited to the third and fourth grades. In only a very few places has this work been made progressive and continued throughout the course.

In European countries and in this country in the secondary schools geography is without field work, without contact with life, with the main feature studied. The course of study should include commercial geography, and be closely connected with geology, history, and biology. The pupils should have sufficient work in the field to be able to interpret a landscape and note the relations of life to topography.

4. In the normal schools the separate courses in methods, general geography, and physical geography, in the two years' course, at least, should be combined into one course, taught by the teacher of geography. This course must cover the same ground with the same methods that the pupil must use later in her schoolroom, but in connection with each topic she must learn the wider interpretations, and gather a rich fund of materials for illustration in her future teaching. This will give unity to the work, save much time, give the pupil opportunity to acquire new facts, arrange, and illustrate them so as at once to be of value in teaching.

5. Geography in colleges and universities has reached its highest development in Germany, but is rapidly taking its place with other natural sciences in all important European countries, and in this country. The problems which it investigates require a knowledge of the natural sciences, and of historic, economic, and social progress, and are increasing in importance with the advance of civilization.

6. In the elementary schools, the work is too closely limited to the text-book with very little regard for the pedagogical order and methods of adaptation to the child. The results of special studies of children, and of children's interests in geography, show in general what are the mental characteristics and interests of children. These results may be taken as suggestive bases for the choice of methods and arrangement of materials in instruction in geography in the various stages of educational life. Thus, taking into account these facts as well as those derived from the historical studies, courses of study, text-books, and the methods of teaching are outlined. All are adapted to the child. Greater unity is secured. The time is shortened. Fewer facts are given to be memorized. The cultural value of the subject is increased. The present methods are reversed by beginning with life elements and reserving for the last the emphasis on physical and causal relations. Arranged according to these principles, established by modern pedagogy and psychology, geography will be one of the most valuable of school subjects of study.

—*From The Pedagogy of Geography.*

THE STUDY OF LAND FORMS.—If we compare physical geography with an inflected language, we may say that it has its own peculiar vocabulary, its inflections, and its conjugations. It is quite as necessary for the student of physical geography to collect a stock of words peculiar to that science as for the Latin or Greek student to know the meaning of the words he uses; and, what is more, he must learn to know the *thing* by its *name* regardless

of an equivalent. A teacher once told me that when I began to *think* in Latin, I would begin to know Latin. So the student will begin to be a geographer when he begins to think in terms of the technical words of that science. Thus, if we say that a ***belted coastal plain*** is a land surface lying between an *oldland* upland and the sea, that it has a *cuesta* which separates the *coastal lowland* from the *inner lowland,* and that upon the cuesta is a *divide* which separates the *consequent* streams of the *outer lowland* from the *obsequent* streams which flow down the *in-facing slope* to the *subsequent* stream which has worked out its valley upon the less resistant rocks of the *inner lowland,* we have given a description which would be "Greek" to the layman but which ought to be perfectly intelligible to the physical geographer, not only because he knows the technical terms but because he has a mental picture of just what has taken place to bring this land form to its present condition.

Land forms may be classified just as definitely as Latin verbs are classified into their four conjugations. Thus, we speak of *narrow, broad, belted,* and *embayed* coastal plains, of *block, folded, domed, subdued, worn-down,* and *embayed* mountains, and of *undissected, sub-maturely dissected, maturely dissected,* and *worn-down* plains. The classifications of land forms are not arbitrary, as is the case with Latin verbs. They are based upon logical differences which are consequences of their age and of the processes of nature which have been at work upon them.

If, now, we grant that physical geography can give the pupil a fund of valuable information and that it can discipline him in scientific habits of thoughts, how can it develop his creative powers? To create anything he must have imagination. Does physical geography develop the imagination?

It seems to me that a large part of our equipment of maps, globes, pictures, models, and special apparatus is intended to do just that thing. Except for instruments for direct measurement, the whole of our apparatus consists of devices for representing the things we are studying. What is a topographic map but a device for helping the student to form a mental picture of a bit of land surface? We cannot bring a mountain into the class room, nor can we always take the class to a mountain; so we show a picture of the mountain, we make a model of it, we study a contour map of it, we draw a section of it, and then we ask the pupil to imagine what it really looks like. If we ourselves will but recall our impressions when we first saw the mountains, the sea, the Great Lakes, or the Great Plains of the west, we can appreciate how far short of the truth were the pictures of them which we had formed in imagination. Physical geography can do

much, however, especially in these days of good apparatus and profusely illustrated text-books, to bring the imagination nearer to the truth.

In the analysis of a land form, the student must picture to his mind all the stages through which it has passed. He must create for himself the scenes which attended its progress through elevation, dissection, tilting, folding, resubmergence, and perhaps a re-elevation, glaciation, and volcanic changes—all these and more, until the present form is attained. Then he may go on in imagination and predict its possible future. His speculation will not be idle, because he must draw upon every resource of his knowledge and experience and out of these materials create a fabric which shall be coherent, consistent, and plausible. There need be no fear that he will carry his speculations too far, because, if he gets beyond the bounds of reason, the cold, hard facts of nature will quickly bring him back. On the other hand, when he comes to know that what he has imagined is quite possible and that he has created something in his mind that is actually duplicated in nature, he gains in self-confidence and therefore in mental power.

The most impressive thing to a teacher, when he first puts a class into the laboratory, is its helplessness. The pupils may be able to recite ever so glibly from the text-book; but, give them some contour maps, some small globes, or some specimens of rocks and minerals and let them study them for a few minutes and then ask them what they have learned. Then ask a few leading questions and see how much they *can* learn. Your surprise will be of a different kind. After a few days, give them something different, and you will find that some of the helplessness has disappeared. If you will keep this up for a year, you will find yourself asking fewer questions, and you will find the pupils going at their problems with the air of veterans. They will not all do that, and some of them may have to come back next year and try it over again. But, did you ever notice the superiority of a last year's "failure," so-called, over one of the normally bright pupils who is taking the subject for the first time? It may not be universal, but it is apparent enough in many cases to make you believe that your work on the "failure" was not all in vain, even if he didn't pass his examination.

Laboratory work in physical geography has a value peculiar to itself aside from that contained in the mere subject matter. It is capable of training the powers in a different way from chemistry, or physics, or biology, or manual training. It is not antagonistic to any of these, but claims a place *with* them in developing the powers. It requires a certain amount of manual skill, particularly in drawing, it draws upon the other sciences to answer many of the questions which arise, and then it adds something of its own which the others cannot give.

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This may be said of physical geography as a whole, and not only of its laboratory work. It is distinctly a *science,* and as such is capable of developing and refining the powers of the mind as no amount of manual training can do. To place it on a par with *any* number of hours of shop work and drawing, where no reading or study outside of school hours are required, is to rob it of its virtue as a pure science; and to attempt to substitute for it an equivalent of American history in a so-called "Scientific" course is absurd.

Can physical geography arouse any enthusiasm? Any study will arouse enthusiasm just in so far as the pupils can be made to feel that it touches them in their daily life and experience. So, if we can make them feel that physical geography deals with those things with which they are in daily contact, we can arouse an intense interest and create a desire on their part to know more of those things.

Most of them have very little idea, when they first come to the class, of what physical geography is "about," as the expression goes. But, if we can show them that it is about the very ground they walk on, about the air they breathe, about the food they eat, and about the thousand and one things that go to make up their physical environment, then we can look for a large development of enthusiasm.

They have not traveled widely, and it is difficult to get up much interest in what they have not seen; but, as a matter of fact they have seen more than they think they have. For example, it is hard to get them interested in the belted coastal plain of southern New Jersey—just a bit of land along the Atlantic coast, with some features which they must learn, but not particularly interesting if they do not happen to live there. If, however, we can show them that Cleveland is located upon a similar bit of land, that southeast of the city is the cuesta which they can see from the class room, that the building stands upon the inner lowland, that the divide is just beyond Akron, and that another cuesta rises gently toward Niagara Falls, then the New Jersey plain acquires a new interest and they are anxious to study it in order to understand the Cleveland plain.

My experience has demonstrated that the laboratory sections should be small and that all should be at work on the same map at the same time. By all working on a map of the same section all the members may get the benefit of the questions asked by both students and teacher. Of course cases do arise where students will depend too much upon other members, and one might wish that adjacent students were not at work upon the same maps.

The directions given to the student for the study of the map should not be much more than outlines and the teacher must be ready to lead discussions and ask questions as the work advances. As a result of a discussion started one day in our class, one of the girls had the old and well fixed idea that "a volcano is a burning mountain," rooted out of her head by settling the fact that Mt. Shasta was a volcano long before that part of the cone which rises above 8,000 feet of elevation was formed.

—*From School Science and Mathematics, June, 1907.*

DEPTH OF DEATH VALLEY, CAL.—The U. S. Geological Survey has just completed a line of spirit-levels through Death Valley, and ascertained that the depression of that area below sea-level is not so great as was supposed. The preliminary figures for the lowest point give—276 feet. Bennetts Well, which is near this place, is 266 feet below sea-level. The final computations may slightly alter these figures, but they are probably not more than three feet in error. The Geological Survey now has elevation marks on the highest and lowest points of dry land in the United States.

It is a strange coincidence that these two extremes are both in southern California and only 75 miles apart. Mount Whitney is a foot or two over 14,500 feet above sea-level, while Death Valley is 276 feet below. Before the Salton Sink, also in southern California, was flooded by the Colorado River, it contained the lowest point of dry land in the United States—a spot 287 feet below sea-level.

Previous estimates of the depth of Death Valley based on barometer readings gave for the lowest point figures varying from 250 to 450 feet below sea-level. The level line of the Geological Survey is the first accurate determination of elevations in that locality.

—*Bulletin of American Geographical Society.*

THE HAWAIIAN ISLANDS.—Attention is again called to this important "Cross-roads of the Pacific" by a half-dozen pages (91-96) in the November number of the Monthly Consular Reports. A glance at the Pilot Chart of the North Pacific, issued monthly by the Hydrographic Office at Washington, reveals the appropriateness of the phrase quoted. The islands are an intersecting point for sixteen great steamship lines that traverse this ocean, and their importance, politically and commercially, will be enhanced in a few years by the opening of the Isthmian Canal.

Honolulu is destined to be in the tide of the world's greatest commerce,

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because it is in the direct line from Vancouver and Seattle to Sydney, from San Francisco to the Philippines and Hongkong, and from Panama to Japan. It is on the chief lines of trade between Occident and Orient.

The Hawaiian Territory is chiefly a one-crop agricultural country. Sugar constitutes 95 per cent. of the exports. The cultivation of cane has reached a high degree of perfection, and, with many natural advantages, the plantations produce more cane to the acre and more sugar to the ton of cane than any other country of the world. Steam ploughs in the fields, and latest steam and electric appliances at the mills, irrigation works and costly pumping stations—these are some of the items which make this eminence possible.

Other industries now being tried are pineapple, banana, mango and alligator pear growing. These and other tropical fruits do well, but have not been pushed because the people were dominated by the one idea—sugar-growing.—G. D. H.

—*Bulletin of American Geographical Society.*

Distribution of Population.—Two recent articles by Professor A. Woeikow in Petermann's Mitteilungen XI, XII on the distribution of population over the globe considered in relation to natural conditions and to human activity, contain much that teachers will find suggestive and helpful. No geographer would, of course, deny that the distribution of man over the surface of the globe is determined broadly by geographical conditions, but he must at the same time admit that, owing to man's peculiar social characteristics, the distribution at any one period in time is not wholly determined by conditions of relief, of climate, and so forth. If we suppose that a prolific community establishes itself in some suitable region, then, if the social bonds are strong and the migratory instinct feeble, this area may become more densely populated than its resources justify, even though other suitable areas of the surface of the globe remain inadequately populated. China is, of course, the typical example of this. Professor Woeikow's articles, which are illustrated by two very striking maps, and some very useful tables, are full of interesting facts in regard to the relation between the natural conditions and the density of population.

He naturally begins by a consideration of the broad conditions, especially climate, which limit the density of population in different localities. Probably most teachers have dwelt upon man's adaptability, and pointed out that climate is on the whole more important in that it markedly affects plant-life, than for its direct effect on man as organism. The cost of his

food in different climates is of course an important point, and here Professor Woeikow emphasises the need of fat in cold climates. He regards fat as the most costly element in a diet, and this fact limits the possibility of large settlements in very cold regions by greatly increasing the cost of labor. As the grass family constitutes man's great source of carbo-hydrates, his distribution is largely determined by the conditions suitable for the growth of its members.

Professor Woeikow goes on to give some detailed statistics which are very striking. If we divide the world into five regions—(1) Europe with the nearer East and North Africa, (2) Southern and Eastern Asia, (3) Africa exclusive of the region north of the Sahara, (4) America, and (5) Australasia with the islands of the Pacific—we find that the first two include more than four-fifths of the total population of the globe, the Asiatic region having 840 millions as contrasted with the 480 millions in the European region. A glance at a map showing distribution will serve to show that the above are natural regions in that they are separated from one another by sparsely populated wastes, etc. Again, a point of much geographical interest is the fact that more than half mankind lives between 20° to 40° N. lat. Full of suggestiveness also is the fact that in the old civilizations of India and China the tendency is for the population to be uniformly distributed over the surface, while in the newer civilizations—alike in Europe and in those parts of the world which have been peopled from Europe—the tendency is for the greater part of the population to accumulate in large towns. The two maps illustrate, first the general distribution of the population of the globe; and, secondly, the proportion of the community in the different regions which dwell in large towns, and the contrast between the two maps is striking in the extreme. As their coloring is broad and simple, it could be readily transferred to any blank map of the hemispheres for class-teaching purposes.

—*From Scottish Geographical Magazine.*

NOTES FROM CONSULAR REPORTS

Coffee Native to Abyssinia

Page 57. Abyssinia is the original home of the coffee plant, which was transplanted in Arabia, and first reached the world, commercially, from Mocha. The province of Kaffa, from which the name is derived, and the environs of Harrar furnish the most of the Abyssinian crop, a good deal of which finds the consuming market at Mocha.

Brazil Does Not Keep Her Immigrants

Page 98. From Consul G. E. Anderson, of Rio de Janeiro. Most of the land in Sao Paulo and in other Brazilian states is held by Brazilians to whom grants were made years ago, perhaps for exploration or other service, but who are unable to develop the land themselves and yet are unwilling to have anyone else develop it except by purchase at extortionate rates. European emigrants will stay in no new country where they cannot acquire landholdings, and the result is that Sao Paulo, in the past three years, has lost 3,700 more emigrants than it has gained in immigrants, and this, too, in spite of the fact that the Brazilian government and the Sao Paulo state government have had agents in Europe during these years to secure immigrants.

The Making of Smyrna Rugs

Page 149. Report of Consul E. L. Harris. The chief places of manufacture are villages in the district about Smyrna. The production of carpets in Asia Minor is essentially a house industry and the natives are exceedingly skilful in their handiwork. The industry gives employment and a livelihood to thousands of needy people, especially women, who are obliged to do the work almost entirely, while the men spend their time in the coffee houses drinking strong coffee and smoking numberless cigarettes, all in true oriental fashion. Little girls are compelled to take up the work early, at seven or ten years of age at the latest, and they keep at it unceasingly until they go to their graves.

Smyrna Wants American Canned Fruits

Page 180. There is an opportunity here for American canned fruits of every description. It may seem incredible, the idea of sending fruit to a country which produces figs and oranges in abundance, but it can be done, nevertheless. Asia Minor has been compared to California. The two countries have much in common as far as climate and soil are concerned. In the one country everything which human ingenuity can provide is brought to aid nature in fruit culture. In the other, with the exception of a few vineyards and orchards, near the city of Smyrna, everything from olive and date trees to licorice root grows wild. A really rational system of gardening, fruit growing or farming is absolutely unknown in this country. There is not a canning factory between Smyrna and the Persian Gulf. It is impossible to estimate how much fruit drops from the trees and rots in the ground each year for want of picking or communication to the nearest market. This is the reason why there is a market for American

canned fruit in Smyrna, and there always will be one until there is a radical change in the method of culture and preservation of fruit in Asia Minor.

Cacao in Ecuador

Page 210. Consul H. R. Dietrich states that with a world product of 300,000,000 lbs., Ecuador produced in 1906, 52,690,500 lbs. from the warm lowlands and valleys tributary to the coast. He gives a very interesting account of the plant and its cultivation and handling.

GEOGRAPHY IN INDIANAPOLIS.—Whatever definition of geography is given, the two elements, the human and the physical, must compose it. The modern conception of geography makes it the most comprehensive of all subjects, including history, and the social as well as the physical sciences. It is not so much the amount of knowledge gained by the study that makes it so valuable a life factor, as it is the direction it gives to life. The Russian authorities recognized this when they forbade its study in a certain province.

Next to the love of his family and pets, the earth, with its firmament, is the earliest great interest of a child. It is his nesting place. The thought so ideally presented in "The Seven Little Sisters," that the peoples of the earth make a great household, presided over by an allwise Father and a tender, loving mother, is entertained gladly by all children and must be preserved.

Our course of study recognizes geography as a part of the curriculum in the very first year and it extends throughout the course. It is dignified by the name, and given a definite place on the program, in the third year. As a life study generally begins with the home, and some observations of the character, behavior, and migrations of the creature studied, so our geography begins with nature study and history lore. Observations of the natural phenomena are made in the second year, and some preparation for the great reach from the home to the whole earth made in the reading of "Little People of Other Lands." "Hiawatha" and "Robinson Crusoe," those ideal geographies for little children, follow. Then, "The Seven Little Sisters" presents the great wide world with its one human family,—and physical geography begins. "Each and All" makes a study of plants and animals, and shows how they are dependent upon the soil. Primitive, industrial and commercial activities are considered, and even the study of a large city is made. The human element has predominated, but the course in physiography outlined for the third year should be so

thorough as to be the foundation work for the globe studies of the fourth year, and a basis for the physical work of the next period. The work of the fourth year, including a general study of occupations and government, is a preparation for the advanced step of undertaking to explain why certain industries exist in defined localities. The continents are studied as life centers, the human element still predominating both in the geography and in "Pioneer Stories" and "Ten Boys." In the sixth and seventh grades, the continents are again studied, but with more intelligence and from a different point of view. Physical and political conditions are given greater attention, with the purpose of discovering their relation to the life centers; and now the course takes the pupil back to the earth as a whole. The concepts gained of its physical features, when imagination had free play, will be verified by observation, corrected by experience, and enlarged by thought. History will engage the attention at the close of the course, with geography, "that other book," as Carlyle spoke of it, open.

As each point studied must be a contribution to the work above, and as each point learned is based on some previous knowledge or experience, it is necessary that the teacher of any grade should understand the entire scope of the work. If to this could be added the knowledge given and suggested in the new course of study, then we would have the teaching that Colonel Parker prophesied would come. The plan as outlined there is the result of study, and represents the scientist, the student of child study, and the practical teacher. If each teacher feels that the perfection of the whole plan depends upon the skill of his daily work, then its success is assured.

The earth study movement came as a most formidable invasion of the curriculum of the elementary schools, a few years ago. The university is held responsible, and receives much honor for having made this greatest of all reforms in education. It came about in this way: It was claimed that students, upon entering college, while very strong in memory and thought perhaps, were helplessly weak in seeing and imaging; and a demand was made for close observation work throughout the elementary school course. Geography was seized as the most desirable subject for this training. The university men of science entered into the work with enthusiasm, organized the material, and instructed the teachers. The physical sciences were all recast, and now Shaler, Geikie, Davis, Salisbury and Frye are familiar names of authority in elementary instruction. The university and the elementary school have met on a common ground.

—Circular 6, Indianapolis Public Schools.